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EXAMINER
LE, DEBBIE M

ART UNIT	PAPER NUMBER
2168	

DATE MAILED: 12/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 October 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11,19-25,30,32-38,40,41 and 49* is/are pending in the application.

　　4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11,19-25,30,32-38,40,41 and 49* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

　　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　　a)☐ All　b)☐ Some *　c)☐ None of:

　　　1.☐ Certified copies of the priority documents have been received.

　　　2.☐ Certified copies of the priority documents have been received in Application No. _____.

　　　3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

　　* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
　　Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
　　Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Response to Amendment

Applicants' arguments filed on 10/17/05. Claims 1-11, 19-25, 30, 32-38, 40, 41

and 49 are pending for examinations.

The rejection under 35 U.S.C 101 as directed to non-statutory subject matter has

been removed, with respected to Applicants' amended to claims 22, 35 and 40.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of

the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g)

prior art under 35 U.S.C. 103(a).

Claims 1, 3-7, 9-11, 19-23, 30, 32-36, 40, and 49 are rejected under 35 U.S.C.

103(a) as being unpatentable over Friske et al (US Patent 6,519,613 B1) in view of

Vagnozzi (US Patent 6,499,033 B1).

As per claims1, Friske discloses a system for reorganizing a database while

allowing substantially uninterrupted access to the database comprising:

reorganizing data (*data set subject to reorganization*) of an original table (fig. 3, #

302, *from the logical database 302*) by copying (*unloaded*) the data to a reorganized

table (fig. 3, # 310, *shadow location*) (col. 6, lines 5-11, 25-33);

during the copying, allowing modifications to the data of the original table while

collecting records of the modifications (*substantially continuous access to the database*

while the reorganization process is executing, col. 1, lines 31-32, col. 3, lines 29-30);

when the copying completes, applying the modifications from the collected

records (fig. 3, # 312, log records) against the reorganized table (shadow location) (col.

6, lines 33-36);

applying a lock to the original table (as non-blocking drain to lock on an original

database or a lock on a source, see col. 2, lines 35-35, col. 3, lines 6-8),

applying any remaining modifications from the collected records against the

reorganized table (col. 6, lines 37-39);

applying a lock to the reorganized table (as the reorganization lock is in place,

see abstract, last 3 lines);

substituting the reorganized table for the original table (fig. 4, # 422, col. 6, lines 42-43, col. 9, lines 13-15); and

removing the second trigger lock, wherein additional more-restrictive locks to the original table are not needed during the method of reorganizing the original table, thereby providing clients of the original table continuous access to the data during the reorganization through at least the other operations allowed by the first trigger lock (fig. 4, # 426, col. 9, lines 16-19).

Friske does not explicitly teach applying a first partial lock, the first lock blocking select data modification operations against the original table while allowing other operations against the original table; applying a second partial lock, the second lock blocking select data modification operations against the reorganized table while allowing other operations against the reorganized table during the reorganization such that the reorganization table remain, the reorganized table remains accessible while substituting the reorganized table for the original table.

However, Vagnozzi teaches the database must be locked against update during certain portion of the retrieval operation...The database is locked with a shared-lock (reader lock) only during execution of the query process. This allows any number of other retrieval operations on the table to process concurrently, while temporary locking out update operations (col. 15, lines 22-38) are equivalent to the claimed language "applying a partial lock, select data modification operations while allowing other operations". Vagnozzi teaches the database must be locked against update during certain portion of the retrieval operation, this allows any number of other retrieval

operations on the table to process concurrently while temporary locking out update

operations are equivalent to the claimed language "table remains accessible while

substituting the reorganized table for the original table". . Thus, it would have been

obvious to one of ordinary skill in the art at the time the invention was made to combine

the teachings of the cited references to provide a partial lock to a database and/or table

while allowing other operations against the database and/or table during the

reorganization such that the reorganization table remain, the reorganized table remains

accessible while substituting the reorganized table for the original table would allow

users of Friske's system to reduce locking overhead and increase concurrency during

database operations requiring access (e.g., query processing), as suggested by

Vagnozzi (col. 15, lines 35-38).

As per claim 3, Vagnozzi teaches wherein the other operations allowed by at

least one of the first and second partial locks comprises one or more read-only

operations (col. 15, lines 25-26).

As per claim 4, Friske teaches during the application of the modifications from

the collected records (fig. 3, # 312) against (a arrow) the reorganized table (fig. 3 #

310), allowing additional modifications to the data of the original table while collecting

additional records of the additional modifications (*reflecting changes which occurred to*

the original data set after the target data set was unloaded, col. 6, lines 33-35); and

when the modifications and at least portions of the additional modifications have

been applied against the reorganized table, applying the first partial lock to the original

table (col. 2, lines 33-45);

wherein the step of applying any remaining modifications includes applying any

remaining modifications or additional modifications against the reorganized table (col. 6,

lines 36-39).

As per claims 5, Vagnozzi teaches wherein when the original table included one

or more relational constraints, the method further comprises applying at least one of the

one or more relational constraints to the reorganized table (Fig. 4)

As per claim 6, Friske teaches wherein the application of the at least one

relational constraint to the reorganized table includes applying a trigger procedure to the

reorganized table (Fig. 4).

As per claim 7, Friske teaches wherein the application of the at least one

relational constraint to the reorganized table includes applying a partial lock to another

table (Fig. 4)

As per claim 9, Frishe teaches archiving the original table (as applying log

records to the original table, see Fig. 3, # 312, #302).

As per claim 10, Friske teaches wherein the copying of the data of the original

table to the reorganized table further comprises creating an original synchronization

point, after which the records of modifications are collected (as synchronization points,

Fig. 5, col. 7, line 13, col. 8, lines 23-52).

As per claim 11, Friske teaches wherein before the application of the second

partial lock, the original table and the reorganized table are in synchronization with one

another (col. 3, lines 43-45).

As per claim 19, Friske teaches a method for reorganizing an object in a

database, the method comprising:

reorganizing an original object (*data set subject to reorganization from the logical

database 302*) by copying data from the original object to a reorganized object

(unloading and loading into a shadow location) (see Fig. 3, col, 6, lines 5-11, 25-33);

applying a lock to the original object (as the reorganization lock is in place, see

abstract, last 3 lines*)*, the lock blocking data modification operations from modifying the

original object while allowing other operations to access the original object, wherein

additional more restrictive locks to the original object are not needed during the method

of reorganizing the original object, thereby providing clients of the original object

continuous access to the data during the reorganization through at least the other

operations allowed by the lock (see abstract, lines 11-13 that "*The non-blocking drain

does not prevent other requests on the database from being processed while the

reorganization lock is in place*", fig. 4 # 404).

Friske does not explicitly teach applying a partial lock to the original object.

However, Vagnozzi teaches the database must be locked against update during certain

portion of the retrieval operation...The database is locked with a shared-lock (reader

lock) only during execution of the query process. This allows any number of other

retrieval operations on the table to process concurrently, while temporary locking out

update operations (col. 15, lines 22-38) are equivalent to the claimed language

"applying a partial lock". Vagnozzi teaches the database must be locked against update

during certain portion of the retrieval operation, this allows any number of other retrieval

operations on the table to process concurrently while temporary locking out update

operations are equivalent to the claimed language "table remains accessible while

substituting the reorganized table for the original table". Thus, it would have been

obvious to one of ordinary skill in the art at the time the invention was made to combine

the teachings of the cited references to provide a partial lock to a database and/or table

while allowing other operations against the database and/or table during the

reorganization such that the reorganization table remain, the reorganized table remains

accessible while substituting the reorganized table for the original table would allow

users of Friske's system to reduce locking overhead and increase concurrency during

database operations requiring access (e.g., query processing), as suggested by

Vagnozzi (col. 15, lines 35-38).

As per claim 20, Vagnozzi teaches wherein the other operations include one or

more read-only operations (col. 15, lines 25-26).

As per claim 22, Friske teaches

reorganizing an original object (*data set subject to reorganization*) by copying

(*unloaded*) from the original object (fig. 3, # 302, *from the logical database 302*) to a

reorganized object (fig. 3, # 310, *shadow location*) (col. 6, lines 5-11, 25-33);

applying a lock to the reorganized table (as the reorganization lock is in place,

see abstract, last 3 lines).

Friske does not explicitly teach applying a partial lock, the partial lock blocking

data modification operations from modifying the reorganized object, while allowing other

operations to access the reorganized object, wherein the reorganized object remains

continuously accessible during reorganization. However, Vagnozzi teaches the

database must be locked against update during certain portion of the retrieval

operation...The database is locked with a shared-lock (reader lock) only during

execution of the query process. This allows any number of other retrieval operations on

the table to process concurrently, while temporary locking out update operations (col.

15, lines 22-38) are equivalent to the claimed language "applying a partial lock".

Vagnozzi teaches the database must be locked against update during certain portion of

the retrieval operation, this allows any number of other retrieval operations on the table

to process concurrently while temporary locking out update operations are equivalent to

the claimed language "table remains accessible while substituting the reorganized table

for the original table". Thus, it would have been obvious to one of ordinary skill in the art

at the time the invention was made to combine the teachings of the cited references to

provide a partial lock to a database and/or table while allowing other operations against

the database and/or table during the reorganization such that the reorganization table

remain, the reorganized table remains accessible while substituting the reorganized

table for the original table would allow users of Friske's system to reduce locking

overhead and increase concurrency during database operations requiring access (e.g.,

query processing), as suggested by Vagnozzi (col. 15, lines 35-38).

As per claim 23, Vagnozzi teaches wherein the other operations include one or more read-only operations (col. 15, lines 25-26).

Claim 30 is rejected under the same rationale as stated in independent claim 1 arguments.

Claim 32 is rejected under the same rationale as stated in independent claim 19 arguments.

As per claim 33, Vagnozzi teaches wherein the other operations include one or more read-only operations (col. 15, lines 25-26).

Claim 35 is rejected under the same rationale as state in independent claim 22 arguments.

As per claim 36, Vagnozzi teaches wherein the other operations include one or more read-only operations (col. 15, lines 25-26).

Claim 40 is rejected under the same rationale as state in independent claim 22 arguments.

Claims 2, 8, 21, 24-25, 37-38, 41, 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Friske et al. (US Patent 6,519,613 B1) in view of Vagnozzi et al (US Patent 6,363,387 B1) and further in view of Pereira (US Patent 6,122,640).

As per claim 2, Friske and Vagnozzi do not explicitly wherein the other operations allowed by at least one of the first and second partial locks comprises one or more structural modification operations. However, Pereira teaches a lock a source table (col. 7, lines 60-67) so that allows modification to the structure of the source being

operated. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of the cited references to provide a lock to a structure modification operations because it improves speed of the reorganization process to recreate the database.

As per claim 21, Friske and Vagnozzi do not explicitly wherein the other operations include one or more structural modification operations. However, Pereira teaches a lock a source table (col. 7, lines 60-67) so that allows modification to the structure of the source being operated. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of the cited references to provide a lock to a structure modification operations because it improves speed of the reorganization process to recreate the database.

As per claim 24, Friske and Vagnozzi do not explicitly wherein the other operations include one or more structural modification operations. However, Pereira teaches a lock a source table (col. 7, lines 60-67) so that allows modification to the structure of the source being operated. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of the cited references to provide a lock to a structure modification operations because it improves speed of the reorganization process to recreate the database.

As per claim 25, Friske and Vagnozzi do not explicitly teach wherein the one or more structural modification operations include consecutive data definition language operations. However, Pereira teaches a lock a source table (col. 7, lines 60-67) so that allows modification to the structure of the source being operated. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of the cited references to provide a lock to a structure modification operations because it improves speed of the reorganization process to recreate the database.

As per claim 34, Friske and Vagnozzi wherein the other operations include one or more structural modification operations. However, Pereira teaches a lock a source table (col. 7, lines 60-67) so that allows modification to the structure of the source being operated. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of the cited references to provide a lock to a structure modification operations because it improves speed of the reorganization process to recreate the database.

As per claim 37, Friske and Vagnozzi do not explicitly wherein the other operations include one or more structural modification operations. However, Pereira teaches a lock a source table (col. 7, lines 60-67) so that allows modification to the structure of the source being operated. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of the cited references to provide a lock to a structure modification operations because it improves speed of the reorganization process to recreate the database.

As per claim 38, Friske and Vagnozzi do not explicitly wherein the one or more structural modification operations include consecutive data definition language operations. However, Pereira teaches a lock a source table (col. 7, lines 60-67) so that allows modification to the structure of the source being operated. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of the cited references to provide a lock to a structure modification operations because it improves speed of the reorganization process to recreate the database.

As per claim 41, Vagnozzi teaches the read only access to the data includes read-only (col. 15, lines 25-26). Friske and Vagnozzi do not explicitly wherein the read only access to the data includes read-only access during multiple data definition language operations. However, Pereira teaches a lock a source table (col. 7, lines 60-67) so that allows modification to the structure of the source being operated. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of the cited references to provide a lock to a structure (DDL) modification operations because it improves speed of the reorganization process to recreate the database.

As per claim 49, Vagnozzi teaches apply a partial lock, the partial lock blocking select data modification language operations while allowing one of one or more read-only operations (col. 15, lines 25-26). Friske and Vagnozzi do not explicitly teach blocking select data modification language operations while allowing one of one or more read-only operations and one or more data definition language operations. However,

Pereira teaches a lock a source table (col. 7, lines 60-67) so that allows modification to the structure of the source being operated. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of the cited references to provide a lock to a structure (DDL) modification operations because it improves speed of the reorganization process to recreate the database.

As per claim 8, Friske and Vagnozzi do not explicitly wherein the original table includes a table name, and wherein the step of substituting the reorganized table for the original table further comprises renaming the original table another name and naming the reorganized table the table name. However, Pereira teaches wherein the original table includes a table name, and wherein the step of substituting the reorganized table for the original table further comprises renaming the original table another name and naming the reorganized table the table name (col. 4, lines 30-32). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of the cited references to implement the step of renaming the original table and naming the reorganized table to another name as disclosed by Pereira's system. This would allows users of Firske's system and Vagnozzi's system who currently have pending transactions to the source table, should be continued until all users transaction are terminated.

Response to Arguments

Applicant's arguments filed 10/17/05 have been fully considered but they are not persuasive.

Applicants argue that Vagnozzi fails to teach "the partial lock of database tables during reorganization" because Vagnozzi "describes a process of selectively retrieving record in a database-not reorganization of an object in a database.

In response, Examiner respectfully disagrees.

Vagnozzi does not only disclose applying "partial lock" to a process of selectively retrieving records in a database, but also mention that "the use of variable length fields and permits fields to be added to the database without having to reorganize the database" (col. 2, lines 62-65). Since, Friske teaches reorganization of a database using a non-blocking drain to lock on a database. Vagnozzi teaches "permits fields to be added to the database", which means that the database structure has been changed by newly added fields into the database structure. Therefore, in combination, the teachings of the two references, Friske and Vagnozzi do teach applying partial lock to lock the original object and the reorganized object.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

The prior art made of record, listed on form PTO-892, and not relied upon, if any,

is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to DEBBIE M. LE whose telephone number is (571) 272-

4111. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, JEFFREY GAFFIN can be reached on (571) 272-4146. The fax phone

number for the organization where this application or proceeding is assigned is 571-

273-8300.

Information regarding the status of an application may be obtained from the

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For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

DEBBIE M LE
Examiner
Art Unit 2168

Debbie Le

12/13/05